

Claims

I claim:

1. An apparatus comprising:

an eye tracking system for determining an eye-gaze direction line of a user looking at a display screen of a display device;

an eye-gaze tracking module for extracting the eye-gaze direction from the eye tracking system and for determining an intersection point where the eye-gaze direction line intersects with the display screen;

wherein the eye-gaze tracking module sends the intersection point data to a scalable video decoder; and

wherein the scalable video decoder receives an encoded video stream and provides a first set of higher video resolution data to a first region surrounding the intersection point on the display screen and a second set of lower video resolution data to a second region of the video screen.

2. The apparatus of claim 1, wherein the scalable video decoder provides a video decompression algorithm selected

3 from the group consisting of MPEG-2, MPEG-4 and H.263 for
4 decoding the encoded video stream.

1 3. The apparatus of claim 1, wherein the encoded video
2 stream is selected from the group consisting of graphics,
3 animation, and alpha numeric data.

1 4. The apparatus of claim 1, wherein the second region on
2 the video screen includes a plurality of regions with
3 differing video resolutions.

1 5. The apparatus of claim 1, wherein the eye tracking
2 system includes an eye pupil movement detector.

1 6. The apparatus of claim 1, wherein the second region on
2 the video screen is dimmer than the first region on the video
3 screen.

1 7. An apparatus comprising:

2 an eye tracking system for determining an eye-gaze
3 direction line of a user looking at a display screen of a
4 display device;

5 an eye-gaze tracking module for extracting the eye-gaze
6 direction from the eye tracking system and for determining an
7 intersection point where the eye-gaze direction line
8 intersects with the display screen;

9 wherein the eye-gaze tracking module sends the
10 intersection point data to a scalable video encoder; and

11 wherein the scalable video encoder receives a source
12 video stream and provides an encoded first set of higher
13 video resolution data to a remote video decoder and an
14 encoded second set of lower video resolution data is provided
15 to the remote video decoder.

16 1. 8. The apparatus of claim 7, wherein the encoded first set
17 of higher resolution data is decoded in the remote video
18 decoder and provided to a first set of higher video
19 resolution data to a first region of the display screen and a
20 wherein the second set of lower video resolution data is
21 provided to a second region of the display screen.

1 9. The apparatus of claim 7, wherein the scalable video
2 encoder provides a video compression algorithm selected from
3 the group consisting of MPEG-2, MPEG-4, and H.263 for
4 encoding the source video stream.

1 10. The apparatus of claim 7, wherein the source video
2 stream is selected from the group consisting of graphics,
3 animation, and alpha numeric data.

1 11. The apparatus of claim 7, wherein the second region on
2 the video screen further includes a plurality of regions with
3 differing video resolutions.

1 12. The apparatus of claim 7, wherein the eye tracking
2 system includes an eye pupil movement detector.

1 13. The apparatus of claim 7, wherein the second region of
2 the video screen is dimmer than the first region of the video
3 screen.

1 14. A method comprising:
2 providing a display screen;
3 determining an eye-gaze direction line of a user looking
4 at the display screen;
5 determining an intersection point where the eye-gaze
6 direction line intersects with the display screen;
7 providing a video stream to a scalable video device; and
8 wherein the scalable video device provides a first set
9 of higher video resolution data to a first region surrounding
10 the intersection point on the display screen and a second set
11 of lower video resolution data to a second region of the
12 video screen.

13 15. The method of claim 14, wherein scalable video device is
14 a scalable video decoder or a scalable video encoder.

15 16. The method of claim 14, wherein the video stream is
16 selected from the group consisting of MPEG-2, MPEG-4, and
17 H.263 for encoding the video stream.

18 17. The method of claim 14, wherein the second region on the
19 video screen further includes a plurality of regions with
20 differing video resolutions.

1 18. The method of claim 14, wherein the eye tracking system
2 includes an eye pupil movement detector.

1 19. The method of claim 14, wherein the second region of the
2 video screen is dimmer than the first region of the video
3 screen.

1 20. The method of claim 14, wherein the video stream is an
2 encoded video stream.

1 21. The method of claim 14, wherein the display screen is
2 selected from the group consisting of a computer, a
3 television, and a personal digital assistant.